भारतीय मानक
Indian Standard

IS 3585 : 2018

तैयार मिश्रित रंग रोगन, एल्यूमिनियम, ब्रशिंग प्राइमिंग, जल प्रतिरोधी, लकड़ी के सामान — विशिष्टि

(पहला पुनरीक्षण)

Ready Mixed Paint, Aluminium, Brushing, Priming, Water Resistant for Woodwork — Specification

(First Revision)

ICS 87.040

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भारतीय मानक ब्यूरो
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Paint, Varnishes and Related Products Sectional Committee CHD 20

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Paints, Varnishes and Related Products Sectional Committee had been approved by the Chemical Division Council.

This standard was first published in 1966. At that time the Committee felt that a wood primer suitable for use under both oil-based and varnish-based finishing paints was desirable. It was transpired that the Ministry of Defence had already formulated JSS No. 3005 (Prov)-I963 Paint, P.F.U., priming, aluminium, water resistant (brushing/spraying), based on non-leafing aluminium paste and synthetic resin varnish medium. This material, which was presently being used for bridging equipment, pontoons, buoys, marine craft, etc, and found advantageous where a quick drying water resistant material for woodwork is required, had been taken into consideration in drawing up this standard specification.

This is one of the few standards where maximum lead content has already been prescribed as 300 ppm. The Committee responsible for the formulation of this standard observed that in practice this paint is used for coating of bridges, equipment, pontoons, buoys, marine craft etc. and presence of lead compound in this product may lead to contamination of water which may affect aquatic life. There is a trend also of using this product for painting of woodwork in houses and buildings. Presence of lead compound in this product leads to possibility of exposure of toxic lead substance to both children and adults.

Revision of this standard has been taken up with a view to modify the limit of lead restriction in this standard considering the scope of its uses and to avoid hazardous impact of lead exposure to consumers and consequent adverse impact on environment and human health. For manufacturing this product, naturally occurred extruders/fillers are not used as a part of the constituents. Even no such raw materials are used which contains lead except the trace amount that may come as impurities. So it is technologically feasible to formulate this product with very low maximum permissible limit of lead Therefore, in this revision, lead restriction up to a maximum permissible limit of 90 ppm has been prescribed keeping in view it is likely to used for painting woodwork in house and buildings This limit also has been prescribed keeping in view of the scope for exposure to children to the paint once dried and also aiming at avoiding hazardous impact of lead on environment and health of living beings including aquatic life.

Further, majority of consumers are not aware of the consequences of lead toxicity and its long term implications to human health. Therefore, in this revision, along with lead restriction, a suitable cautionary notice has been included in the marking clause. The committee was also of the opinion that the use of the term 'lead free' would be in appropriate in view of that since no paint can be made absolutely as lead free. Therefore, the term 'lead free' has been substituted with lead restriction clause. Reference has been given to various parts/sections of IS 101 for the requirements given in the standard.

This standard is one of a series of Indian Standard specifications on wood primers. Other specifications published so far in this series are:

IS 3536 : 2016	Ready mixed paint, brushing, wood primer — specification (*second revision*)
IS 10018 : 1981	Lacquer, cellulose, nitrate, clear, finishing, glossy for wood

The Committee responsible for formulation of this standard is given in Annex D.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1968 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

READY MIXED PAINT, ALUMINIUM, BRUSHING, PRIMING, WATER RESISTANT FOR WOODWORK — SPECIFICATION

(First Revision)

1 SCOPE

This standard prescribes the requirements and the methods of sampling and test for ready mixed paint, aluminium, brushing, priming, water resistant, for woodwork. The material is used as a primer in the painting system normally followed for paints and wooden surfaces. It is used for the protection of woodwork both under marine and inland outdoor conditions. It may also be used for direct application to metal surfaces.

2 REFERENCES

The standards listed in Annex A contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated in Annex A.

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 1303 shall apply.

4 REQUIREMENTS

4.1 Composition

The material shall consist of the ingredients mixed in the proportions, by weight, specified below:

		Percent by Weight
a)	Non-leafing aluminium paste (conforming to IS 289) except with regard to determination of leafing value	20, *Min*
b)	Suitable oil-modified phenolic varnish	40, *Min*
c)	Liquid driers (conforming to Grade 2 of IS 8766)	
d)	Thinners	50, *Max* (including that introduced with aluminium paste varnish medium and driers)

4.2 Lead Restriction

The material shall not contain lead or compounds of lead or mixtures of both, as metallic lead more than 90 ppm, when tested for restriction from lead in accordance with IS 101 (Part 8/Sec 5).

4.3 The material shall also comply with the requirements given in Table 1.

5 PACKING AND MARKING

5.1 Packing

The material shall be packed as agreed to between the purchaser and the supplier. The packing is subject to the provisions of the law in force in the country at that time.

5.2 Marking

5.2.1 The container shall be marked as follows:

a) Name of the material;
b) Indication of the source of manufacture;
c) Lead content (Maximum);
d) Volume of the material;
e) Batch number or Lot number in code or otherwise;
f) Month and year of manufacture; and
g) A cautionary note as given below:
   1) Keep out of reach of children.
   2) Dried film of this paint may be harmful, if eaten or chewed.
   3) This product may be harmful, if swallowed or inhaled.

5.2.2 *BIS Certification Marking*

The product may also be marked with the Standard Mark.

5.2.2.1 The use of the Standard Mark is governed by the provisions *of Bureau of Indian Standards Act,* 2016 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

Table 1 Requirements for Ready Mixed Paint, Aluminium, Brushing, Priming, Water Resistant, for Woodwork

(*Clauses* 4.3 *and* 7)

Sl No.	Characteristic	Requirement	Method of Test, Ref to	
			IS No.	Ref to Annex
(1)	(2)	(3)	(4)	(5)
i)	Drying time, h, *Max* Hard dry	8	(Part 3/Sec 1)	—
ii)	Mass, in kg/10 litre, *Min*	9.2, however it shall be within ±3 percent of the approved sample, if any	(Part l/Sec 7)	—
iii)	a) Consistency	Smooth and uniform	—	B
	b) Viscosity, s in No. 4 Ford Cup at 27 ± 2°C	Between 30 and 40	(Part 1/Sec 5)	—
iv)	Finish	Smooth	(Part 3/Sec 4)	—
v)	Flexibility and adhesion:			
	a) Scratch hardness (Load 1 000 g)	No such scratch as to show the bare metal	**3** of (Part 5/Sec 2)	—
	b) Bend test, using type 1 apparatus, 6.25 mm dia mandrel	No visible damage or detachment of film	**2** of (Part 5/Sec 2)	—
vi)	Resistance to humidity under conditions of condensation	No signs of corrosion	**2** of (Part 6/Sec 1)	—
vii)	Flash point	Not below 30°C	(Part 1/Sec 6)	—
viii)	Wet opacity	Between –10 percent and + 20 percent of the approved sample or the value declared by the manufacturer	(Part 4/Sec 1)	—
ix)	Resistance to water	To pass the test	—	C
x)	Water content (if suspected to be present) percent by mass, *Max*	0.5	(Part 2/Sec 1)	—
xi)	Keeping properties	Not less than one year from the date of manufacturing	(Part 6/Sec 2)	—

5.3 Other details of packing and marking shall be in accordance with the instructions given by the purchaser.

6 SAMPLING

6.1 Representative samples of the material shall be drawn as per IS 101 (Part 1/Sec 1).

6.2 Preparation of Test Samples

6.2.1 *For Drying Time Test*

Prepare mild steel panel of sizes 150 mm × 100 mm × 1.25 mm as prescribed in **2** of IS 101 (Part 1/Sec 3). Apply the paint on each side of the panel uniformly by brushing to give a dry film mass commensurate with the mass per 10 l as specified in Table 1 of IS 101 (Part 3/Sec 4). Prepared test panel then subjected to the test as specified in IS 101(Part 3/Sec 1) as soon as possible.

6.2.2 *For Flexibility and Adhesion Test*

For both bend test and scratch hardness test prepare separate burnished tin plate panels, rectangular, of sizes 100 mm × 50 mm × 0.3 mm as prescribed in **3** of IS 101 (Part 1/Sec 3). Apply one coat of material uniformly by brushing on the panels as to give a dry film mass commensurate with the mass per 10 litre as specified in Table 1 of IS 101(Part 3/Sec 4). The coated test panels shall be dried for 48 h and then shall be conditioned at a temperature of 27 ± 2°C and relative humidity of 65 ± 5 percent for a minimum time of 16 h. Prepared test panels the subjected to the test as prescribed in **2** and **3** of IS 101(Part 5/Sec 2) for bend test and scratch hardness test respectively.

6.3 Criteria for Conformity

A lot shall be declared as conforming to the requirements of this standard, if the test results of the composite sample satisfy the requirement prescribed in **4**.

7 TEST METHODS

7.1 Tests shall be conducted as prescribed in **4.1** and **4.2** and the test methods referred in co1 4 and 5 of Table 1.

7.2 Quality of Reagents

Unless specified otherwise, pure chemicals and distilled water (*see* IS 1070) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the result of analysis.

ANNEX A

(*Clause* 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	*Title*
101	Methods of sampling and test for paints varnishes and related products:
(Part 1)	Test on liquid paints (general and physical)
(Sec 1) : 1986	Sampling (*third revision*)
(Sec 3) : 1986	Preparation of panels (*third revision*)
(Sec 5) : 1987	Consistency (*third revision*)
(Sec 6) : 1987	Flash point (*third revision*)
(Sec 7) : 1987	Mass per 10 litre (*third revision*)
(Part 2)	Test on liquid paints (chemical examination)
(Sec 1) : 1988	Water content (*third revision*)
(Part 3)	Test of paint film formation
(Sec 1) : 1986	Drying time (*third revision*)
(Sec 4) : 1987	Finish (*third revision)*
(Part 4)	Optical test on paint films
(Sec 1) : 1988	Opacity (*third revision*)
(Part 5)	Mechanical Tests
(Sec 2) :1988	Flexibility and adhesion (*third revision*)
(Part 6)	Durability tests on paints films
(Sec 1) : 1988	Resistance to humidity under conditions of condensation
(Sec 2) : 1989	Keeping properties (*third revision*)
(Part 7)	Environmental tests on paint films
(Sec 1) : 1989	Resistance to water *(third revision)*
(Part 8)	Tests for pigments and other solids
(Sec 5) : 1993	Lead restriction test (thir*d revision*)
289 : 1963	Specification for aluminium paste for paints
1070 : 1992	Reagent grade water (thir*d revision*)
1303 : 1983	Glossary of terms relating to paints (*second revision*)
8766 : 1978	Specification for driers for paints

ANNEX B

[*Table* 1, *Sl No.* (iii) (a)]

CONSISTENCY

B-1 APPARATUS

B-1.1 Palette Knife or Metal Rod

B-1.2 Glass Panels — Unless specified otherwise, glass panels of size 150 mm × 50 mm shall be prepared as prescribed in **5** of IS 101 (Part 1/Sec 3).

B-2 PROCEDURE

B-2.1 Insert a clean metal rod or palette knife into the original container and examine the nature of settling.

B-2.2 Observations

The material shall not cake hard inside the container and shall be in such a condition that stirring easily produces a smooth uniform paint suitable for brushing on glass panels.

ANNEX C

[*Table* 1, *Sl No.* ix)]

DETERMINATION OF RESISTANCE TO WATER

C-1 APPARATUS

C-1.1 Wooden Panel — A panel shall be made from chir wood, *Pinus* spp., fam. Pinaceæ, and shall be 200 mm × 100 mm × 10 mm in size with rounded edges to be taken for this test.

C-1.2 Weighing Balance — Of required range and least count.

C-1.3 Other apparatus are as prescribed in **3** of IS 101 (Part 7/Sec 1).

C-2 PROCEDURE

C-2.1 Preparation of Test Panel

The panel shall be prepared as prescribed in **6.1** of IS 101(Part 1/Sec 3). Apply the paint uniformly to both sides of the panel to give a dry film mass commensurate with the mass per 10 l as specified in Table 1 of IS 101 (Part 3/Sec 4) and allow it to air-dry for 24 h. Apply two further coats of the paint in the same manner at an interval of 24 h and allow it to dry for 24 h at room temperature after the application of the final coat. Seal the edges of the painted panel with wax up to a depth of 6 mm by dipping in suitable molten wax and allow to dry for 48 h at room temperature. Calculate the area of the remaining exposed painted surface (A).

C-2.2 The coated test panel shall be conditioned as prescribed in **5.1** of IS 101 (Part 7/Sec 1). Weigh the test panel (W_1). Then follow the procedure as prescribed in **5.2** and **5.2.2** of IS 101 (Part 7/Sec 1). However the panel shall be completely immersed in water at room temperature for 7 days.

C-2.3 At the end of 7 days remove the panel from the tank and wipe off the surface water with a blotting paper and re-weigh immediately (W_2).

C-2.4 Calculation

From the area of the painted surface (A) in contact with water, which is taken as total surface area of the panel not coated with wax, calculate the increase in weight per unit area (ΔW) as below:

$$\Delta W = \frac{W_2 - W_1}{A} \text{ mg/cm}^2$$

C-3 OBSERVATIONS AND RESULTS

The paint shall be deemed to have passed the test, if the increase in weight per unit area shall not exceed 20 mg/cm^2.

ANNEX D

(*Foreword*)

COMMITTEE COMPOSITION

Paints, Varnishes and Related Products Sectional Committee, CHD 20

Organization	*Representative(s)*
National Test House, Kolkata	Dr Sunil Kumar Saha (***Chairman***)
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